IN THE CLAIMS:

Please cancel claims 20-67, without prejudice or disclaimer.

Please add the following new claims:

Claims 1-67 (cancelled)

68. (New) An induction device formed with a core having a region of reduced permeability in a selected portion thereof comprising:

a distributed air gap material disposed in the selected portion of the core; and

a high-voltage winding wound on the core and being configured to operate in an inclusive range of above 34 kV through a system voltage of a power network, said high-voltage winding being flexible including

a current-carrying conductor,

an inner layer having semiconducting properties surrounding and being in electrical contact with said current-carrying conductor,

a solid insulating layer surrounding and contacting the inner layer, and

an outer layer having semiconducting properties surrounding and contacting the solid insulating layer.

69. (New) The induction device according to claim 68, wherein:

said core has opposed free ends forming an interface with said air gap material;

said air gap material has a magnetic permeability value;

said core has a magnetic permeability value;

said permeability value of said air gap material is less than said magnetic permeability value of said opposing free ends;

said permeability value of said opposing free ends is less than said magnetic permeability value of said core; and

the differences in magnetic permeability values form said transition zone.

70. (New) The induction device according to claim 68, wherein said air gap material comprises:

an air gap insert for providing reluctance in said air gap;

B2

said air gap insert is a multi-component structure with a central portion between two end portions;

said central portion, said end portions and said core each have a permeability value;

said permeability value of said central portion is less than said permeability value of said end portions; and

said permeability value of said end portions is less than said permeability value of said core.

71. (New) The induction device according to claim 68, wherein said distributed air gap, comprises:

an air gap insert for providing reluctance in said air gap;

said air gap insert is a multi-component structure; and

said induction device has a zone of transition with more than one value of magnetic permeability.

72. (New) The induction device according to claim 71, wherein:

said multi-component structure has a central portion and end portions.

73. (New) The induction device according to claim 72, wherein:

said central portion has a permeability value;

said end portions have a permeability value;

said core has a permeability value;

said permeability value of said central portion is less than the permeability value of said end portions;

said permeability value of said end portion is less than said permeability value of said core; and

said difference of permeability values forms said transition zone.

74. (New) The induction device according to claim 73, wherein:

said central portion is filled with magnetic particles in a matrix of dielectric material; and

said end portions are filled with chopped magnetic wire.

75. (New) The induction device according to claim 73, wherein:

said central portion is filled with magnetic particles in a matrix of dielectric material; and

said end portions are filled with chopped magnetic wire in a matrix of dielectric material;

76. (New) The induction device according to claim 73, wherein:

said core is comprised of at least one of:

a) a magnetic wire,

b) a ribbon of magnetic material, and

c) a magnetic powder metallurgy material.

77. (New) The induction device according to claim 68, wherein said air gap material comprises:

an air gap insert for providing reluctance in said air gap;

said air gap insert is a dielectric container having an interior filled with magnetic powder particles in a dielectric matrix;

said core having opposing free ends forming an interface with said air gap insert;

said interior of said air gap insert, said opposing free ends and said core each have a permeability value;

said permeability value of said interior is less than said permeability value of said opposing free ends;

said permeability value of said free ends is less than said permeability value of said core; and

wherein said differences in said permeability values create a magnetic transition between said core and said air gap.

78. (New) The induction device according to claim 77, wherein:

said dielectric container is filled with magnetic particles.

79. (New) The induction device according to claim 78, wherein:

said magnetic particles are in a dielectric matrix.

80. (New) The induction device according to claim 79, wherein:

said magnetic particles are coated with a coating of diealectric matrix.

81. (New) The induction device according to claim 78, wherein:

said container is flexible; and

a force applied to said air gap insert changes the density of said magnetic particles and thereby changes the reluctance in said air gap.

82. (New) The induction device according to claim 81, wherein:

said density of said magnetic particles is adjustable by a factor of 2-4 times the magnetic permeability in response to said force being applied to said air gap insert.

83. (New) The induction device according to claim 82, wherein:

said core comprises of at least one of:

a) a magnetic wire,

b) a ribbon of magnetic material, and

c) a magnetic powders metallurgy material.

84. (New) The induction device according to claim 78, wherein:

said interface is planar.

85. (New) The induction device according to claim 78, wherein:

said interface is curved.

86. (New) The induction device according to claim 78, wherein:

said interface is jagged.

87. (New) The induction device according to claim 68, wherein said distributed air gap comprises:

an air gap insert for providing reluctance in said air gap;

said core has a plurality of wires, a portion of said plurality of wires is inserted into said air gap insert; and

said induction device has a zone of transition with more than one value of magnetic permeability.

88. (New) The induction device according to claim 87, wherein:

said air gap insert has a permeability value;

said portion of said plurality of wires has a permeability value;

said core has a permeability value;

said permeability value of said air gap insert is less than said permeability value of said portion of said plurality of wires;

said permeability value of said portion of said plurality of wires is less than said permeability value of said core; and

said difference is permeability values forms said transition zone.

89. (New) The induction device according to claim 68, wherein said distributed air gap comprises:

a distributed air gap insert disposed in the portion of the core formed of finely divided magnetic particles in a matrix of a dielectric material,

wherein said air gap provides reluctance in the portion of the core having a region of reduced permeability.

90. (New) The induction device according to claim 89, wherein the dielectric material comprises at least one of a gas, a liquid, a solid and combinations thereof.

91. (New) The induction device according to claim 89, wherein the particles have a particle size and volume fraction sufficient to provide an air gap with reduced fringe effects.

92. (New) The induction device according to claim 89, wherein the particle size is in a range of 1nm to 1mm.

93. (New) The induction device according to claim 89, wherein the particle size is in range of about 0.1μm to about 200 μm.

94. (New) The induction device according to claim 89, wherein the particles occupy the matrix is a range of up to 60% by volume.

95. (New) The induction device according to claim 88, wherein the matrix includes a polymeric material.

96. (New) The induction device according to claim 95, wherein the polymeric material is a material selected from the group consisting of epoxy resin, polyester, polyamide, polyethylene, cross-lined polyethylene, PTFE, PTA, rubber, EPR, ABS, polyacetal, polycarbonate, PMMA, PPS, PSU, and PEEK.

97. (New) The induction device according to claim 95, wherein the dielectric material comprises a ferrite having a permeability greater than 1.

98. (New) The induction device according to claim 97, wherein the ferrite has a permeability of about 10.

99. (New) The induction device according to claim 89, wherein the magnetic dielectric material comprises a material selected from the group consisting of ferrites, silicon steel iron, amorphous iron-based material, Ni-Fe alloys, Co-Fe alloys, Mn-Zn, Ni-Zn, Mn-Mg.

100. (New) The induction device according to claim 89, wherein the distributed air gap insert comprises a dielectric container having a hallow interior and filled with the distributed air gap material.

101. (New) The induction device according to claim 100, wherein the container is flexible.

102. (New) The induction device according to claim 101, wherein the density of the particle is selectively adjustable by a factor of about 2-4 times the magnetic permeability in response to a force applied to the container.

103. (New) The induction device according to claim 101, wherein the force is isotropic.

104. (New) The induction device according to claim 89, wherein the core comprises at least one part of a magnetic laminate, a ribbon of magnetic material, and a magnetic wire.

105. (New) The induction device according to claim 89, further including an elongated, dielectric container having a hollow interior portion filled with the distributed air gap material.

106. (New) The induction device according to claim 89, wherein the container comprises a hose.

107. (New) The induction device according to claim 89, wherein the hose is flexible.

108. (New) The induction device according to claim 89, wherein the matrix comprises a dielectric coating surrounding the magnetic particles.

109. (New) The induction device according to claim 89, wherein the distributed air gap material comprises finely divided magnetic particles in a maxtrix of a dielectric material.

110. (New) The induction device according to claim 89, wherein the matrix comprises a dielectric coating surrounding the magnetic particle.

111. (New) An induction device formed with a core having a region of reduced permeability in a selected portion thereof comprising:

a distributed air gap material disposed in the selected portion of the core having regions of differing magnetic permeability; and

a high-voltage winding wound on the core and being configured to operate up to a system voltage of a power network, said high-voltage winding being flexible including

a current-carrying conductor,

an inner layer having semiconducting properties surrounding and being in electrical contact with said current-carrying conductor,

a solid insulating layer surrounding and contacting the inner layer, and

an outer layer having semiconducting properties surrounding and contacting the solid insulating layer.

said end portions are comprised of pieces of magnetic wire.

112. (New) The induction device according to claim 111, wherein:

said air gap material has ends and a central portion between the ends filled with magnetic particles in a matrix of dielectric material, and

said end portions are comprise pieces of magnetic wire in said matrix of dielectic material.

113. (New) The induction device according to claim 111, wherein:

said air gap material has ends and a central portion between the ends filled with magnetic particles in a matrix of dielectric material; and

said end portions are comprise pieces of magnetic wire.

114. (New) The induction device according to claim 111, further comprising:

a magnetic means in said air gap material for providing a smooth magnetic transition from said core to said air gap.